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General and complete disarmament: missiles

The issue of missiles in all its aspects

Report of the Secretary-General**

Summary

The present report was prepared by the Panel of Governmental Experts, established pursuant to General Assembly resolution 55/33 A, of 20 November 2000, to address the issue of missiles in all its aspects. The report provides an overview giving the background and current situation in the field of missiles. It also describes a number of areas of concern.

These concerns are related to, inter alia, the increasing number, range, technological sophistication and geographic spread of missiles and their capability of delivering weapons of mass destruction, in particular nuclear weapons, as well as conventional weapons, missile defences and their strategic consequences, the potential use of space-launch vehicle technology for the development of missiles, the role of missiles in military doctrines as well as the role and scope of confidence-building measures.

The Panel concluded, among other things, that these and other issues are regarded as serious concerns for international peace and security. It noted that there are multiple approaches currently undertaken to deal with the issue of missiles, both within and outside the United Nations. The Panel also stated that it is essential to continue efforts in this regard and noted the role of the United Nations in this context. Finally, it concluded that all approaches undertaken at the national, bilateral, regional, plurilateral and multilateral levels, including the initiatives described in the report, need to be further explored.

* A/57/150.

** The present report is submitted upon the conclusion of the work of the Panel of Governmental Experts in July 2002.

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Letter of transmittal

I have the honour to submit herewith the report of the Panel of Governmental Experts on the issue of missiles in all its aspects. The Panel was appointed by you in pursuance of paragraph 3 of General Assembly resolution 55/33 A of 20 November 2000.

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The report was prepared between July 2001 and July 2002, during which time the Panel held three sessions in New York, the first from 30 July to 3 August 2001, the second from 1 to 5 April 2002 and the third from 1 to 9 July 2002.

The members of the Panel wish to express their appreciation for the assistance they received from members of the Secretariat of the United Nations, in particular, Mr. Valère Mantels of the Weapons of Mass Destruction Branch, Department for Disarmament Affairs, who served as Secretary of the Panel, as well as Mr. Christophe Carle, Deputy Director, United Nations Institute for Disarmament Research and Mr. Waheguru Pal Sidhu, who served as consultants to the Panel.

The Panel is also grateful to Mr. Jayantha Dhanapala, Under-Secretary-General for Disarmament Affairs, for the support received from him throughout its work.

I have been requested by the Panel of Governmental Experts, as its Chairman, to submit to you, on its behalf, the annexed report, which was unanimously approved.

(*Signed*) Antonio José **Guerreiro**
Chairman

Foreword by the Secretary-General

The international community has long been concerned by the accumulation, proliferation, technical refinement and threat and use of ballistic and other types of missiles. In response, States have pursued various unilateral, bilateral or multilateral measures. Nonetheless, there is no universally accepted norm or instrument specifically governing the development, testing, production, acquisition, transfer, deployment or use of missiles.

The present report was prepared by the Panel of Governmental Experts established pursuant to General Assembly resolution 55/33 A, and is the first effort by the United Nations to address the issue of missiles in all its aspects.

The report discusses the background and present situation with regard to missiles, including their capabilities and characteristics, existing measures and current initiatives. It identifies other issues of concern, including the growing sophistication of missiles and the possibility of their being used as the means to deliver weapons of mass destruction, in particular nuclear weapons, as well as conventional weapons, and recognizes that all States have the right to explore and use space for peaceful and beneficial purposes.

The Panel's deliberations revealed a great diversity of views and concerns on a very complex subject. I am confident that the report will contribute to building an international consensus, especially within the United Nations, on this key question of international peace and security. I wish to express my appreciation to the members of the Panel for completing their work on the basis of a consensus, and I commend their report to the General Assembly for its consideration.

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I. Introduction

1. By its resolution 55/33 A of 20 November 2000, entitled "Missiles", the General Assembly requested the Secretary-General, with the assistance of a Panel of Governmental Experts established on the basis of equitable geographical distribution, to prepare a report for the consideration of the General Assembly at its fifty-seventh session on the issue of missiles in all its aspects.

2. The Secretary-General appointed a Panel of Governmental Experts from 23 States: Algeria, Argentina, Australia, Brazil, Canada, Chile, China, Egypt, France, Germany, India, Indonesia, the Islamic Republic of Iran, Israel, Japan, Pakistan, the Republic of Korea, the Russian Federation, Slovakia, South Africa, Ukraine, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

3. The Panel held three meetings, from 30 July to 3 August 2001, from 1 to 5 April 2002, and from 1 to 9 July 2002, at United Nations Headquarters in New York.

4. The Panel discussed the issue of missiles in a comprehensive, balanced and non-discriminatory manner, as a contribution to international peace and security. It was mindful of the security concerns of Member States at the international and regional levels, of the complexities involved in considering the issue of missiles and of the need for continued international efforts against the development and spread of all weapons of mass destruction, bearing in mind the close connection between such weapons and missiles as delivery systems.

5. The Panel took account of the views expressed in the replies received from Member States in response to General Assembly resolutions 54/54 F, 55/33 A and 56/24 B of 1 December 1999, 20 November 2000 and 29 November 2001, respectively, entitled "Missiles", as well as in the background papers made available by Panel members.

6. The present report is the first effort by the United Nations to address the issue of missiles in all its aspects. It reflects concerns of the international community about the accumulation, refinement and spread, threat and use of missiles in both their regional and global dimensions. This Panel was not a forum for negotiation, but a forum for discussion of the existing situation and trends, as well as for exploring realistic and inclusive options for addressing all aspects of the issue, bearing in mind the central role of the United Nations in the sphere of disarmament.

II. Overview: Background and current situation

A. Background

7. Although rudimentary missiles have been in existence for centuries, the Second World War witnessed the emergence of modern missiles as effective means of warfare.

8. The V1 rocket, the "flying bomb", had a design resembling a small aircraft, with air-breathing pulse jet propulsion. It flew with inertial guidance at about 560 kilometres per hour, at altitudes between 300 and 2,500 metres, and had a range

of 285 to 370 kilometres. The V1 existed in ground-launched and air-launched versions and delivered a conventional explosive charge. Some 30,000 of these missiles were fired between June 1944 and June 1945. The V1 was the first cruise missile used in warfare.

9. The V2 rocket had a maximum range of 350 kilometres and delivered a conventional explosive charge of 1,000 kilograms. It was powered by a liquid-fuelled rocket engine and was ground-launched from road-mobile or rail-mobile launchers. An estimated 4,300 V2 rockets were launched between September 1944 and March 1945. The V2 was the first modern ballistic missile used in warfare.

10. Although bombing raids by aircraft were far more destructive than missiles during the Second World War, these missiles did create a reign of terror. The use of missiles in the Second World War revealed the potential destructive capability of these weapons, even with conventional ordnance. The design of the V1 and V2 formed the basis for the subsequent development of missiles by other countries after the Second World War. Since then, advanced conventionally armed cruise missiles have proved to be particularly effective and accurate, especially against localized targets.

11. The diversity, sophistication and performance of missiles increased greatly during the cold war. Missiles of numerous types were designed to strike their targets as reliably, fast and accurately as possible. The great variety of missiles was determined by the various kinds of targets for which they were intended, by the critical technologies available (including propulsion, materials, guidance and control) and by the nature of the warheads to be delivered.

12. The full destructive capability of missiles was realized during the cold war due to the following factors:

(a) Missiles, especially ballistic missiles, became the delivery means of choice for nuclear weapons. Until the advent of long-range nuclear-capable ballistic missiles, long-range bomber aircraft were the main means of delivering nuclear weapons. Subsequently, missiles were also mated with both biological and chemical as well as advanced conventional warheads, which, along with nuclear-tipped missiles, were capable of inflicting far greater destruction than the missiles used in the Second World War;

(b) There was a quantitative rise in the number of countries possessing missiles with ranges of 150 kilometres and above. This number rose from a single country to at least 30 countries by the end of the cold war. While the estimated total number of missiles built during the Second World War was around 35,000, by the end of the cold war the estimated total global missile holdings stood at over 120,000 missiles with ranges of 150 kilometres and above, with the bulk of these being in the possession of the Union of Soviet Socialist Republics and the United States of America. There was also a rise in the number of very short-range missiles or rockets with ranges under 150 kilometres.

13. Since the end of the cold war, the proliferation of various kinds of missiles, especially ballistic and cruise missiles, has spread and, armed with conventional warheads, missiles have continued to be used in military operations.

B. Existing capabilities

14. The existing diversity of missiles stretches from man-portable, shoulder-fired anti-armour missiles with ranges of a few hundred metres, to missiles weighing some 100,000 kilograms at launch, capable of carrying multiple nuclear warheads and of ranges in excess of 10,000 kilometres.

15. Existing missile capabilities are difficult to assess with any certainty. Relevant information is often classified, transparency measures are few and published secondary sources can be incomplete, contradictory or impossible to confirm. The existence of missile programmes can sometimes be inferred from flight tests, but data on the characteristics, performance and operational status of the missiles tested are often unobtainable.

16. The armed forces of almost all States possess some missiles, although the quantitative and qualitative levels of missile holdings vary considerably. National missile arsenals range anywhere between a few units or dozens for some States to thousands for other States. In recent years, non-State actors have also acquired and used man-portable and very short-range missiles under the 150 kilometres range.

17. As of 2002, it is estimated that some 35 countries possess missiles with ranges equal to or in excess of 150 kilometres. Such missiles can be categorized by:

(a) The nature of the ordnance delivered: conventional, chemical, biological or nuclear;

(b) Their method of propulsion: air-breathing or anaerobic, solid or liquid-fuelled, or a combination of these;

(c) Their launch platform: ground-launched (fixed or mobile), ship-launched, submarine-launched or air-launched;

(d) Their type of roles, including: surface-to-surface, surface-to-air, air-to-surface, air-to-air, submarine-to-surface and submarine-to-submarine;

(e) Their intended targets: land-attack, anti-ship, anti-submarine, anti-aircraft, anti-satellite or anti-missile missiles;

(f) Their trajectory: endo- or trans-atmospheric elliptical (characteristic of ballistic missiles), or variable (characteristic of cruise missiles and other guided missiles).

18. Missiles are also categorized according to their range. A definition of the range of a ballistic missile is the maximum distance measured by projecting its flight trajectory onto the Earth's surface from the point of launch to the point of impact of the last element of its payload. A definition of the range of a cruise missile is the maximum distance that can be covered until fuel exhaustion, measured from the point of launch to the point of impact. There is no universally accepted standard for the classification of missiles according to their ranges; different States and various non-governmental experts have adopted different categories of missile-ranges.

C. Missile characteristics

19. A missile is an unmanned, self-propelled, self-contained, unrecallable, guided or unguided vehicle designed to deliver a weapon or other payload. A ballistic

missile is a weapon-delivery vehicle that has a ballistic trajectory over most of its flight path. A cruise missile is an unmanned, self-propelled weapon-delivery vehicle that sustains flight through the use of aerodynamic lift over most of its flight path. Unmanned aerial vehicles (UAV) and remotely piloted vehicles (RPV) share many of the characteristics of cruise missiles and are sometimes indistinguishable from them. Both unmanned aerial and remotely piloted vehicles are intended to be used more than once.

20. **Unmanned**: Missiles are unmanned delivery vehicles that may be guided along all or part of their flight paths, using autonomous or remote commands, thereby reducing the risk to personnel guiding them. By contrast, the delivery of payloads by means of aircraft can expose flight crews to risk.

21. **Speed**: Most missiles travel at high speeds, enabling short flight times to their objective. Ballistic missiles have the greatest speeds and have terminal velocities in the order of 4 to 7 kilometres per second. The flight times of ballistic missiles are typically measured in minutes. The flight time of a ballistic missile is about 13 minutes to cover a range of 2,000 kilometres for a trajectory with an apogee of 400 kilometres. On the other hand, it can take hours for aircraft to reach distant targets. Turbofan propelled cruise missiles with an approximate speed of 850 kilometres per hour would take over two hours to cover a distance of 2,000 kilometres.

22. **Penetration**: Whether of advanced or rudimentary design, the small cross-section of ballistic missiles combined with their high terminal velocities enables them to evade air defences and anti-aircraft defences, as well as some existing anti-missile defences. Advanced ballistic missiles can be fitted with multiple independently targeted re-entry vehicles and/or terminal guidance devices, as well as decoys, which further increase their penetration capabilities. Cruise missiles, especially advanced cruise missiles with terrain-contour guidance, do not rely on speed for penetration capability, but rather on their low altitude flight path and small radar signature. Because of their low altitude flight profile, cruise missiles can be masked from airborne radar by ground clutter and, owing to the curvature of the Earth, can evade early detection by ground-based radar.

23. **Accuracy**: The accuracy of missiles is measured as their circular error probable (CEP). The CEP is the radius of a circle (with the target as its centre), within which 50 per cent of all missiles fired at a target are expected to strike. The smaller the CEP, the more accurate the missile. The longer the range of the missile, the more difficult it is to attain a low CEP. Accuracy in missiles is essentially a function of guidance and control technology as well as aerodynamics. Advanced cruise missiles can have CEPs as low as 10 metres or less. The most accurate ballistic missiles can sometimes have CEPs of less than 100 metres, even at intercontinental ranges. By contrast, the V2 rocket used in the Second World War had an estimated CEP of 15 to 20 kilometres for a range of 350 kilometres. Fighter/ground attack aircraft equipped with precision-guided munitions can achieve much greater accuracy than most ballistic missiles.

24. **Defensive/interceptive capability**: Surface-to-air missiles rely on speed and accuracy to intercept high or low-flying aircraft. Some of these missiles have some capability to intercept incoming missiles.

25. **Deployment options**: Missiles offer a broad range of deployment options to suit particular uses. Ballistic missiles may be deployed at fixed locations, or on road

or rail-mobile transporter-erector-launchers, as well as on board submarines. Non-ballistic missiles such as cruise missiles and other stand-off missiles can be deployed on the ground, on board aircraft, as well as surface ships and submarines. Mobile platforms help maximize reach and reduce the risk of missile detection. Some fixed deployment options, such as hardened silos, protect missiles from attack in a passive manner.

26. **All weather capability**: Unlike most aircraft, which are weather dependent, many missiles can provide all-weather capability and can be used even in bad meteorological conditions both at the launch and the target location.

D. Peaceful uses

27. Space launch vehicle (SLV) technologies can be used for launching civil satellites and for other peaceful purposes; however, it is acknowledged that there are similarities between SLV technologies and those required for ballistic missiles for military purposes. Aside from warhead-specific technology and re-entry vehicle technology, there is little distinction between SLV technology and ballistic missile technology.

E. Driving factors in the acquisition and development of missiles

28. There are military-strategic, geopolitical, technical and economic factors, both global and regional, behind the development, acquisition and use of missiles.

29. **Military-strategic and geopolitical factors**: Factors related to security concerns, whether bilateral, regional, transregional or global, are central to the decision by States to acquire or develop missiles. Such factors include: threat perceptions, including those related to international disputes and military imbalances; perceived security-related requirements for offensive and defensive capabilities; the pursuit of strategic goals and the projection of threats, influence or power by States; the possession and/or use of missiles by other States; and the fact that missiles are the delivery vehicle of choice, in particular for nuclear weapons and other weapons of mass destruction. Missiles are especially suited for offensive use, notably for surprise attacks. Security concerns related to missiles are often of a regional nature, but also have trans-regional and global ramifications and consequences.

30. **Technical factors**: The missile characteristics described above (see paras. 19-26) contribute to explaining why some States may seek to produce or acquire missiles. Some of those characteristics apply to all missiles, while others are distinguishing features of specific types of missiles. Those characteristics take on special significance when measured against the capabilities of other means of delivery, especially aircraft. This is particularly so when States do not have access to long-range aircraft.

31. **Economic factors**: The relatively low cost of most missiles, especially when compared to fully equipped state-of-the-art aircraft, is another driving factor behind the development or acquisition of missiles by some States. Some missile producers that engage in large-scale production achieve economies of scale, which drive down the unit-costs of missiles, seek international sales to secure export-revenues.

F. Measures related to missiles

32. No universal norm, treaty or agreement governing the development, testing, production, acquisition, transfer, deployment or use specifically of missiles exists. On 15 April 1999, the Secretary-General of the United Nations stated that "currently there is no treaty regulating missiles".

33. However, some past and existing treaties and agreements, whether bilateral, plurilateral, regional or multilateral, do make specific provisions on particular types or aspects of missiles. In addition, some States have also adopted unilateral measures that deal with missiles. The main relevant aspects of some of these international measures are set out, in chronological order, below.

34. States parties to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty, 1967), are bound, under its provisions, not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

35. The Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Tlatelolco Treaty, 1967) addresses nuclear weapons rather than delivery vehicles. It does stipulate that the Treaty would cover an instrument that may be used for the transport or propulsion of a nuclear device if it were not separable from the nuclear device and an indivisible part thereof. However, no such delivery systems exist at present. Similar provisions are made in the South Pacific Nuclear-Free Zone Treaty (Treaty of Rarotonga, 1985), the Treaty on the Southeast Asia Nuclear-Weapon-Free Zone (Bangkok Treaty, 1995) and the African Nuclear-Weapon-Free Zone Treaty (Treaty of Penindaba, 1996).

36. The Treaty on the Non-Proliferation of Nuclear Weapons (1968) deals primarily with nuclear weapons or other nuclear explosive devices. However, in its preamble, the Treaty refers to the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament under strict and effective international control.

37. The Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof, (Seabed Treaty, 1971), provides that the States parties undertake not to emplant or emplace on the seabed and the ocean floor and in the subsoil thereof, any nuclear weapons or any other type of weapons of mass destruction as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons.

38. The Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War Between the United States of America and the Union of Soviet Socialist Republics (1971) stipulates that each party undertakes to notify the other party in advance of any planned missile launches if such launches will extend beyond its national territory in the direction of the other party.

39. The Interim Agreement between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms (SALT I, 1972) placed limits on deployed launchers for selected ballistic nuclear missiles. It placed a five-year freeze on the number of

deployed fixed launchers for land-based intercontinental ballistic missiles. The number of deployed launchers for submarine-launched ballistic missiles was permitted to be increased to an agreed ceiling. The Interim Agreement expired in 1977.

40. The Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty, 1972), as modified by a Protocol signed in 1974, permitted each State party only one anti-ballistic missile system deployment area. That area could be designed to protect either the national capital, or an area containing intercontinental ballistic missile (ICBM) silo launchers. The radius of each area was limited, as was the number of anti-ballistic missile radars permitted. Each party undertook not to transfer to other States and not to deploy outside its national territory, anti-ballistic missile systems or their components limited by the Treaty. The Treaty was supplemented in 1997 with agreements on the demarcation between different categories of anti-ballistic missile systems and confidence-building measures, as well as succession. However these agreements did not come into force. On 13 December 2001, the United States of America gave notice of its decision to withdraw from the ABM Treaty. The United States withdrawal became effective on 13 June 2002.

41. The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (1972) refers, in article I, to the commitment of States parties not to develop, produce, stockpile or otherwise acquire weapons, equipment or means of delivery designed to use biological and toxin agents for hostile purposes or in armed conflict. Such means of delivery include missiles designed for delivering biological or toxin weapons.

42. The Final Document of the Tenth Special Session of the United Nations General Assembly, the first special session on disarmament (1978), provides that the achievement of nuclear disarmament will require the cessation of the production of all types of nuclear weapons and their means of delivery. It also calls for a comprehensive, phased programme for progressive and balanced reduction of nuclear weapons and their means of delivery, leading to their ultimate and complete elimination.

43. The Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms (SALT II Treaty, 1979) defined for both parties an aggregate quantitative ceiling of 2,400 on strategic nuclear delivery vehicles. The Treaty covered intercontinental ballistic missiles (ICBM), submarine-launched ballistic missiles (SLBM) and air-to-surface ballistic missiles (ASBM), as well as heavy bomber aircraft. Limits were also introduced on the number of ballistic missiles equipped with multiple independently targetable re-entry vehicles (MIRV), and on the number of air-launched cruise missiles (ALCM) permitted for each heavy bomber. The Treaty stipulated restrictions and exchanges of information on the testing of specific categories of missiles. The Treaty never entered into force.

44. The Missile Technology Control Regime (MTCR, 1987) is a voluntary, non-treaty regime among 33 States that observe common Guidelines on the transfer of a common list of missiles and missile technology (MTCR annex). Its aim is to limit the proliferation of rocket and unmanned air vehicle systems capable of delivering

weapons of mass destruction. The Guidelines state that the Control Regime is not designed to impede national space programmes or international space cooperation that could not contribute to delivery systems for weapons of mass destruction. Category I of the MTCR annex includes rockets and unmanned aerial vehicles capable of delivering a payload of at least 500 kilograms to a range of at least 300 kilometres as well as their major subsystems, production facilities and technology. Category II includes all other missiles capable of a range of at least 300 kilometres and a wide range of equipment and technology applicable to missiles, much of it dual-use. The Regime encourages all States to abide unilaterally by the Guidelines; some (including Israel) have done so.

45. The Agreement between the United States of America and the Union of Soviet Socialist Republics on the Establishment of Nuclear Risk Reduction Centres (1987), provides that mutual notifications of ballistic missile launches shall be transmitted through the Centres established in the capitals of the States Parties.

46. The Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of their Intermediate-Range and Shorter-Range Missiles (INF Treaty, 1987) was of significant importance for missile reductions and non-proliferation. As a result of the Treaty, the Soviet Union and the United States of America completely eliminated an entire class of their ground-launched ballistic and cruise missiles with ranges of 500 to 5,500 kilometres. Altogether, 2,692 such missiles were eliminated in a process involving on-site verification and perimeter monitoring at production facilities. They covered such missiles at three points in their life-cycle, obligating the parties not to produce, test, or deploy them.

47. The Agreement between the United States of America and the Union of Soviet Socialist Republics on Notifications of Launches of Intercontinental Ballistic Missiles and Submarine-Launched Ballistic Missiles (1988), commits the Parties to provide each other, through their Nuclear Risk Reduction Centres, with notification, no less than 24 hours in advance of the planned date, of launch area and area of impact for any launch of an intercontinental ballistic missile or a submarine-launched ballistic missile.

48. United Nations Security Council resolution 687 (1991) addresses the issue of missiles among others.

49. The Treaty between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms (START I Treaty, 1991) provides for reductions in the strategic nuclear arsenals of both Parties. In 1992, Belarus, Kazakhstan, the Russian Federation and Ukraine, as successor States of the former Union of Soviet Socialist Republics, assumed the obligations of the former Soviet Union under the Treaty. Reductions are specified for deployed nuclear warheads (including multiple independently targeted re-entry vehicles) and strategic nuclear delivery vehicles. The Treaty defines a ceiling of 1,600 deployed strategic nuclear delivery vehicles and 6,000 accountable warheads. The Treaty limits ICBMs and ICBM launchers and warheads, SLBMs and SLBM launchers and warheads and heavy bombers and their armaments. By December 2001, the reductions stipulated by the START I Treaty had been completed.

50. The United Nations Register of Conventional Arms (1992), established by General Assembly resolution 46/36 L of 9 December 1991, entitled "Transparency

in armaments", identifies seven categories of equipment on which Member States are requested to supply data to the Register (see resolution 46/36 L, annex, para. 2 (a). Category VII defines "missiles and launchers" as guided or unguided rockets, ballistic or cruise missiles capable of delivering warheads or weapons of mass destruction to a range of at least 25 kilometres, including means designed or modified specifically for launching such missiles or rockets if not covered by categories I through VI (battle tanks, armoured combat vehicles, large-calibre artillery systems, combat aircraft, attack helicopters, warships). For the purposes of the Register, this category also includes remotely piloted vehicles with the characteristics of missiles as defined above, but does not include ground-to-air missiles. The return requested under the Registry for category VII transfers is in the form of an undifferentiated total of all missiles plus launchers.

51. In 1992, India and Pakistan signed an agreement prohibiting attacks against each other's nuclear facilities.

52. The Treaty between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (START II Treaty, 1993) provided for further reductions in the strategic nuclear arsenals of both Parties. Each party was to reduce its strategic nuclear warhead holdings to 3,000 to 3,500, of which no more than 1,700 to 1,750 could be deployed on submarine-launched ballistic missiles. In addition, all intercontinental ballistic missiles with multiple independently targetable re-entry vehicles were to be eliminated, as were all heavy intercontinental ballistic missiles. The Treaty has not entered into force.

53. The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention, 1993) deals primarily with toxic chemicals rather than with missiles. However, it prohibits any equipment specifically designed for use directly in connection with chemical munitions and devices. Such equipment includes missiles specially designed for delivering chemical weapons.

54. The Presidents of the Russian Federation and the United States, in their declaration of 14 January 1994, announced that they would direct the detargeting of strategic nuclear missiles under their respective commands.

55. The Joint Statement by the President of China and the President of the Russian Federation (3 September 1994) stated that the two countries would take measures not to target their strategic nuclear weapons at each other.

56. The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies (1996) seeks to complement and reinforce the existing control regimes for weapons of mass destruction and their delivery systems. Its 33 members are committed to control the export of agreed dual-use items (e.g. materials, electronics, avionics, propulsion), a number of which are relevant to missiles. Its activities include regular information-sharing among the membership, including about transfers of seven categories of weapons (including missiles) similar to those in the United Nations Register of Conventional Arms.

57. On 27 June 1998, The President of China and the President of the United States of America announced that China and the United States will not target strategic nuclear weapons under their respective control at each other.

58. The Lahore Declaration between India and Pakistan, signed on 21 February 1999, specifically deals with prior notification of missile tests. Under the memorandum of understanding signed as part of the Declaration, the two sides undertake to provide each other with advance notification in respect of ballistic missile flight tests and to conclude a bilateral agreement in this regard.

59. In the statement by the Five Nuclear-Weapon States, issued on 1 May 2000 at the Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, the five nuclear States issued a statement in which they declared that none of their nuclear weapons is targeted at any State.

60. The Memorandum of Agreement between the United States of America and the Russian Federation on the Establishment of a Joint Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launches, signed on 4 June 2000, seeks to minimize the consequences of false missile attack warning and to prevent the possibility of a missile launch caused by such false warning. It provides for the establishment in Moscow of a Joint Data Exchange Centre. The data to be exchanged pertains to all launches by either party of ICBMs, SLBMs and other ballistic missiles, as well as launches of ballistic missiles by third States that could pose a direct threat to the parties or that could create an ambiguous situation and lead to possible misinterpretation, and launches of space launch vehicles. It is also stipulated that the parties shall consider the possible implementation of a multilateral regime for the exchange of such data.

61. By resolution 55/33 A, the General Assembly requested the Secretary-General, with the assistance of a Panel of Governmental Experts, to prepare a report for the consideration of the General Assembly at its fifty-seventh session on the issue of missiles in all its aspects.

62. On 16 December 2000, the Russian Federation and the United States of America signed a memorandum of understanding on notification of missile launches, specifying the procedures for the creation of a technical base to implement a bilateral pre-notification system and committing them to seek agreement as soon as possible on how to open the system to the voluntary participation of all interested countries.

63. The Global Control System for the Non-Proliferation of Missiles and Missile Technologies is a proposal by the Russian Federation. The establishment of a global control system was discussed on two occasions, at the international working meetings of experts held in Moscow in March 2000, with 47 States taking part, and in February 2001, with 71 States taking part, on the initiative of the Russian Federation. The system, as proposed, would include the following main components which could be considered under United Nations auspices: a multilateral regime for transparency with respect to missile launches, which could be based at the Russian-American Centre for the Exchange of Data from Early Warning Systems and Notification of Missile Launches in Moscow, or at any other agreed location; measures to promote and ensure the security of States that renounce ballistic missile programmes; and multilateral consultations on the problem of missile proliferation. The Russian Federation has submitted a memorandum of intent in the field of non-proliferation of missiles, based on the global control system to this Panel of Governmental Experts. The memorandum of intent is aimed at a negotiated multilateral, legally binding agreement on a global regime of missile non-proliferation under the auspices of the United Nations.

64. A draft International Code of Conduct against Ballistic Missile Proliferation was initially developed by the members of the Missile Technology Control Regime. In this regard, consultations were conducted on the draft with non-member States. In September 2001, a draft was released to the international community with the recommendation by the Control Regime that it be universalized through an ad hoc process entirely separate from the Regime and open to all States. This process is under way. The draft code of conduct was discussed at an international meeting held in Paris on 7 to 8 February 2002 with 86 States present. A further meeting was held in Madrid from 17 to 19 June 2002, with 96 States present, with a view to negotiating an acceptable and effective code. The code, as proposed, is to be a politically binding arrangement to promote the prevention and curbing of the proliferation of ballistic missile systems and to develop norms of missile behaviour and promote confidence regarding missile and space launch vehicle activities. It is intended to provide for global principles, commitments as well as transparency and other confidence-building measures to address the proliferation of ballistic missiles capable of delivering weapons of mass destruction.

65. The Strategic Offensive Reductions Treaty (Treaty of Moscow, 2002) between the United States of America and the Russian Federation does not explicitly mention missiles, but stipulates that each party shall reduce and limit strategic nuclear warheads so that, by 31 December 2012, the aggregate number of such warheads does not exceed 1,700-2,200 for each Party.

66. Other measures. Although the Panel of Governmental Experts has focused on international measures, a number of States have voluntarily reduced their holdings of missiles, eliminated specific categories of missiles, or forgone the possession and capability to produce certain missiles. Others have kept their missile force in a non-deployed, de-alerted and/or de-targeted posture. Such unilateral measures apply most notably to ballistic missiles. Some unilateral measures may be reciprocated, as in the case of the initiatives on tactical nuclear weapons announced in 1991 by the Presidents of the United States and the Soviet Union, which also resulted in significant missile reductions. Various States have unilaterally adopted export control measures, incorporated into national law, to control the transfer of dual-use technology with relevance to missiles. Proposals have been made for nuclear-weapon-free zones and zero-missile zones and for some restraint in the development and deployment of missiles.

III. Issues related to the issue of missiles in all its aspects

67. The plurality and diversity of concerns related to missiles are linked both to their growing sophistication and to their being the delivery means of choice for weapons of mass destruction, especially nuclear weapons, as well as for many conventional weapons. Some concerns are of global relevance whereas others have particular significance in different regional settings.

68. **Missiles and weapons of mass destruction**: Many types of missiles, and various means other than missiles, can be used to deliver weapons of mass destruction. The increasing numbers, ranges, technological sophistication, and geographic spread of ballistic missiles are viewed as overriding issues of security concern in the field of missiles. Some States see the continued existence of weapons of mass destruction as the primary issue of security concern in this regard. Other

States are concerned about the potential of cruise missiles and unmanned aerial vehicles for delivering certain types of weapons of mass destruction. In addition, some States are increasingly concerned about the potential cooperation between countries with missiles and weapons of mass destruction capabilities. Concerns about the deliberate or accidental use of missiles capable of delivering weapons of mass destruction are particularly acute in circumstances of high tension.

69. **Missiles and conventional capabilities**: Some States view the proliferation and use of conventionally armed ballistic and cruise missiles as the primary security concerns in the field of missiles. These missiles, which can have high accuracy and can be used in large numbers, exceed the global holdings of missiles armed with weapons of mass destruction and can have a worldwide impact.

70. **Missile defences and their strategic consequences**: The development of missile defence systems is broadly seen as a prominent issue in the field of missiles, globally and regionally. There are different points of view as to the implications of missile defences for global and regional security and stability. These differences relate, inter alia, to the following issues: the implications of missile defences for arms control and disarmament; the effects of missile defences as well as of missile defence cooperation on the further spread and refinement of missiles; the effects of missile defences on the weaponization of space; and the effects of missile defences in addressing growing vulnerabilities to missile threats and attacks.

71. **Development and transfer of missiles and missile technologies**: The acquisition of missiles can occur through transfer of missiles and missile technologies between States, the indigenous development of missiles and missile technologies, or a combination of both factors. Both transfers and indigenous development are increasing and represent one of the key issues in the field of missiles.

72. **Dual-use technologies — missiles and space launch vehicles**: It is acknowledged that space launch vehicle technology is of a dual-use nature: the fact that it can be used for the purpose of developing missiles is a concern. At the same time, it is acknowledged that States have the right to pursue the peaceful uses of space and to utilize its benefits for peaceful purposes.

73. **Military doctrine and missile technology**: Most armed forces of the world possess missiles of different kinds. The unique characteristics of missiles make them well suited for threat, deterrence, coercion, self-defence and retaliation. Missiles, therefore, play an increasingly important role in the military doctrines of many possessor States. There is also a relationship between the developments in missile technology and doctrines related to the use of missiles. Although there are differences of view on their implications and importance, the demonstrated utility of missiles and military doctrines related to use of missiles need to be taken into consideration.

74. **Missile related confidence-building and other measures**: Most past and present treaties and other agreements mentioning missiles focus primarily on weapons of mass destruction and are concerned with missiles only as delivery means. At the same time, although confidence-building measures that deal specifically with missiles exist, they are generally bilateral or regional. Confidence-building measures should appropriately take into account the global security environment as well as the security environment of various regions. Differences of

view exist on the need, role and scope of additional confidence-building measures and other measures covering missiles.

IV. Conclusions

75. Issues related to missiles in all aspects, as outlined in the present report, are regarded as serious concerns for international peace and security in the world today. These concerns are of both a regional and global order.

76. It is recognized that questions related to missiles are multifaceted and increasingly complex and cannot be dealt with adequately without due attention to regional and global security dimensions.

77. While noting the existence of international measures in the field of missiles, as described in chapter II above, it is acknowledged that at present no universally accepted norms or instruments to deal specifically with missile-related concerns in all their aspects exist.

78. The Panel noted the multiple approaches being currently undertaken to deal with the issue of missiles both within and outside the United Nations. The deliberations and the present report of the Panel represent the first effort by the United Nations to address the issue of missiles in all its aspects.

79. It is essential to have continued international efforts to deal with the issue of missiles in the interest of international peace and security. The Panel noted the role of the United Nations in the field of missiles. The Panel did not single out any particular course of action or combination of actions on the issue of missiles. The issues identified in the present report and all approaches undertaken at the national, bilateral, regional, plurilateral and multilateral levels, including the initiatives described herein, need to be further explored.